

or coherent reticulate skeleton," while with the latter were associated types in which the skeleton consisted of "isolated or loosely interwoven spicules" only. Zittel, as I find by reference to a copy of his original essay, with which he has kindly furnished me, makes it accidentally read exactly the reverse. In my original diagnosis (*l. c.* p. 252) I further proposed to characterize the group of the "*Calicispongiae*" as possessing spicule-protected gemmules instead of both having "naked membranous gemmules" as rendered by Prof. Zittel.

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*Phenomena accompanying the Metamorphosis of Libellula depressa.*

By M. JOUSSET DE BELLESME.

The author gives an extraordinary account of the mode in which *Libellula depressa* expands to its full size and extends its wings after quitting the pupa-skin. After describing the well-known process of the emergence of the insect, he inquires by what mechanism does the insect inflate itself and increase its volume to such an extent that after issuing from its little envelope it suddenly becomes double its former size.

He states that at this time the function of respiration, which is very active in the adult dragonfly, is not yet set up. There are no movements of inspiration and expiration; the abdomen is cylindrical; and the deep fold in the ventral surface of the abdomen, which he regards as essential to respiration, is not yet in existence. On dissection the air-sacs of the body are found to be empty and flaccid.

Nevertheless the inflation of the dragonfly is effected by air; and if the body is cut through with a pair of scissors it collapses in a moment like a balloon. By taking suitable precautions and dissecting the animal under water, it is found, he says, that the digestive tube here performs a most unusual physiological part. It is so much distended that it absolutely fills the whole interior of the body, pushing the other organs against the integuments. Under the influence of this energetic pressure the blood is pressed forcibly towards the periphery, distends the eyes, and gives the head its definitive form; then passing into the wing, between the two membranes, which up to this time are separate, as M. Blanchard has described them, it accumulates in the wing, unfolds it, and circulates in it, depositing the pigment which is destined to colour it. During this time the integuments, which are distended and bathed by the nutritive fluid, acquire their proper colour and solidity. It is by swallowing the air and storing it in its digestive tube, says the author, that the *Libellula* obtains the force necessary for the accomplishment of most of its transformations; and he thinks there is every reason to believe that the same thing occurs in many other insects.—*Comptes Rendus*, August 20, 1877, p. 448.